

Electronic Supplementary Information

Clicked Dipicolinic Antennae for Lanthanide Fluorescent Probes

Zein El Abidine Chamas^a, Xianmin Guo,^b Jean-Louis Canet,^{*c,d} Arnaud Gautier^{a,d}, Damien Boyer^{*e,f} and Rachid Mahiou^{b,f}

^a Clermont Université, Université Blaise Pascal, Laboratoire SEESIB, BP 10448, F-63000 Clermont-Ferrand, France

^b Clermont Université, Université Blaise Pascal, Laboratoire des Matériaux Inorganiques, BP 10448, F-63000 Clermont-Ferrand, France

^c Clermont Université, ENSCCF, Laboratoire SEESIB, BP 10448, F-63000 Clermont-Ferrand, France. Tel : +33 (0)4 73 40 70 32 ; Fax : +33 (0)4 73 40 77 17 ; E-mail : j-louis.canet@univ-bpclermont.fr

^d CNRS, UMR 6504, SEESIB, F-63177 Aubière, France

^e Clermont Université, ENSCCF, Laboratoire des Matériaux Inorganiques, BP 10448, F-63000 Clermont-Ferrand, France. . Tel : +33 (0)4 73 40 76 47 ; Fax : +33 (0)4 73 40 71 08 ; E-mail : damien.boyer@univ-bpclermont.fr

^f CNRS, UMR 6002, LMI, F-63177 Aubière, France

OPTICAL CHARACTERIZATIONS

Photoluminescence results recorded from europium complexes in OPE conditions

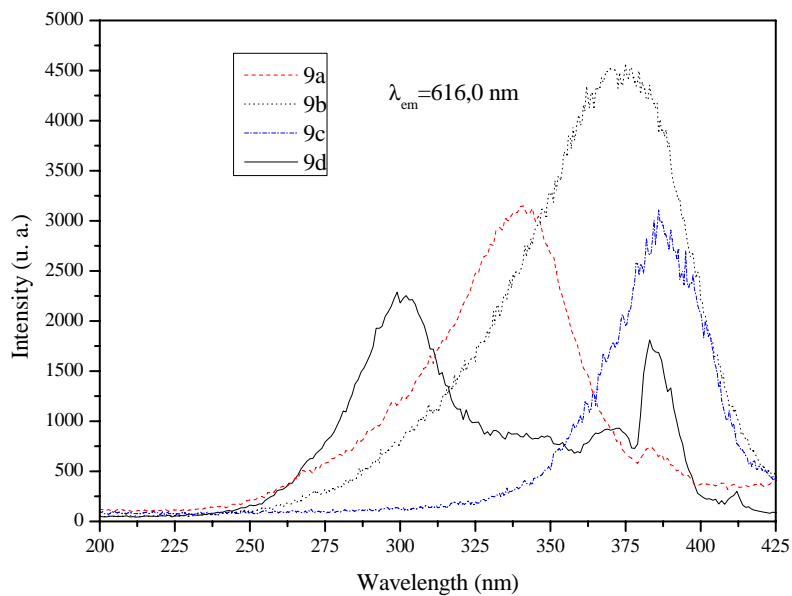


Figure S1. Excitation spectra recorded at RT from europium doped complexes by monitoring the $\text{Eu}^{3+} \text{}^5\text{D}_0 \rightarrow \text{}^7\text{F}_2$ transition (616.0 nm).

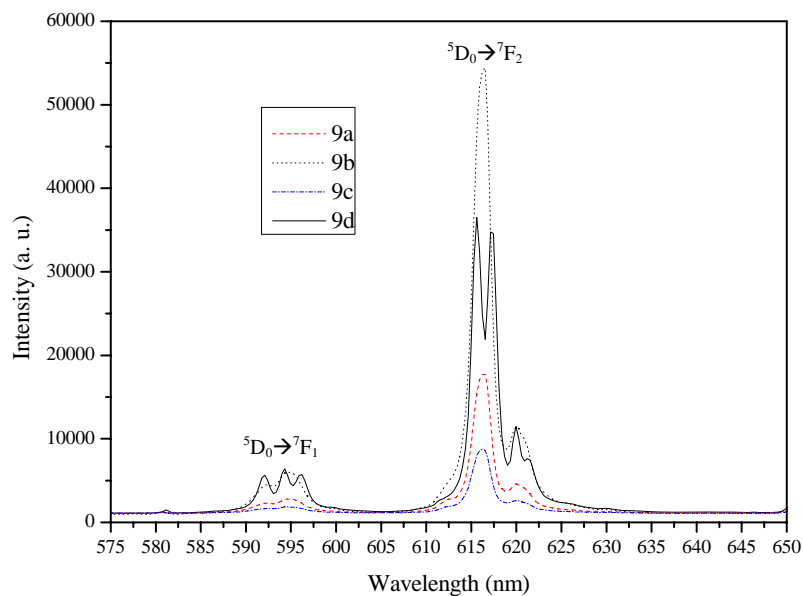


Figure S2. Emission spectra recorded at RT from europium doped complexes upon excitation in stronger excitation band (see Fig. S2).

Photoluminescence results recorded from terbium complexes in OPE conditions

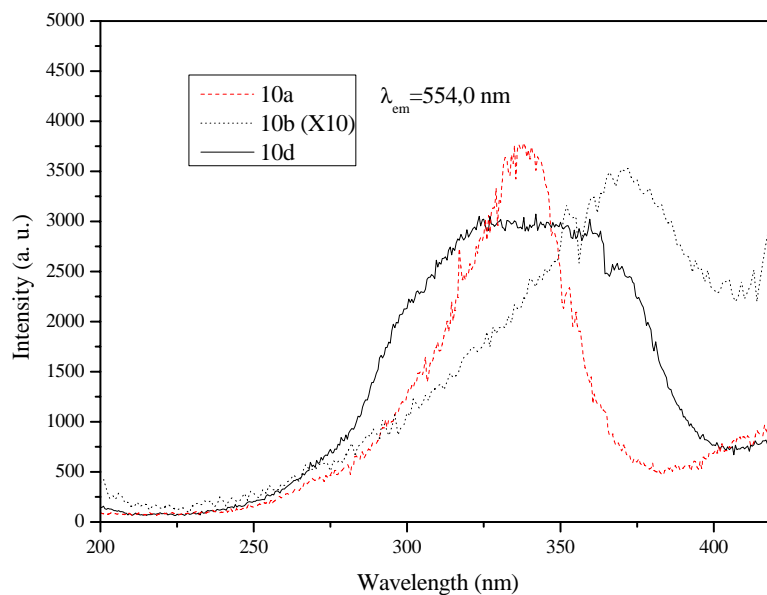


Figure S3. Excitation spectra recorded at RT from terbium doped complexes by monitoring the $Tb^{3+} {}^5D_4 \rightarrow {}^7F_5$ transition (554.0 nm).

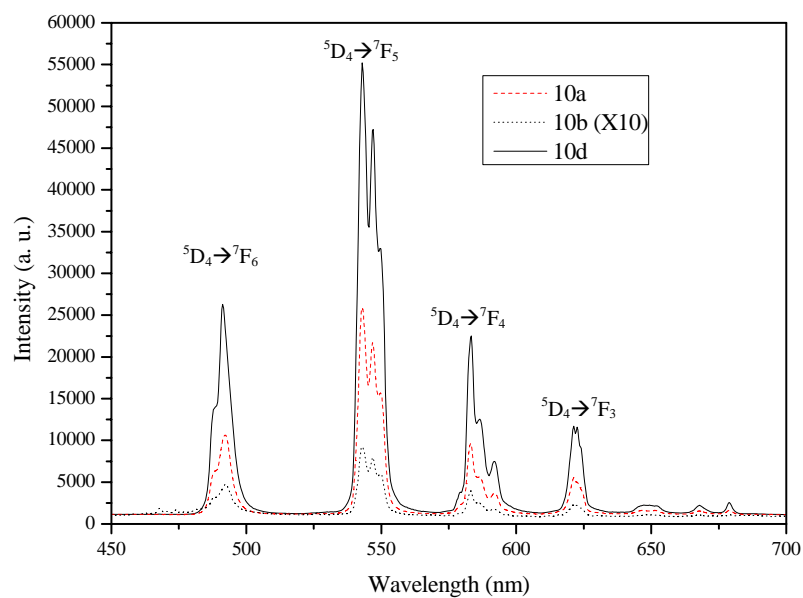


Figure S4. Emission spectra recorded at RT from terbium doped complexes upon excitation in stronger excitation band (see Fig. S3).

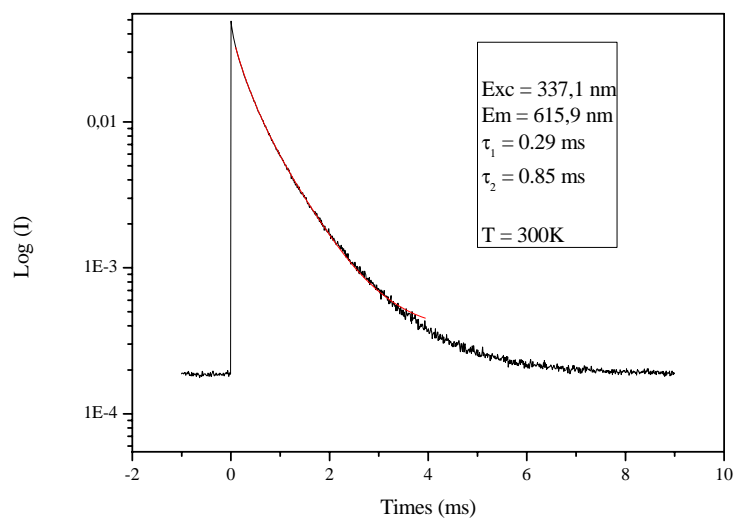


Figure S5. Decay curve recorded from compound 9b in OPE conditions.

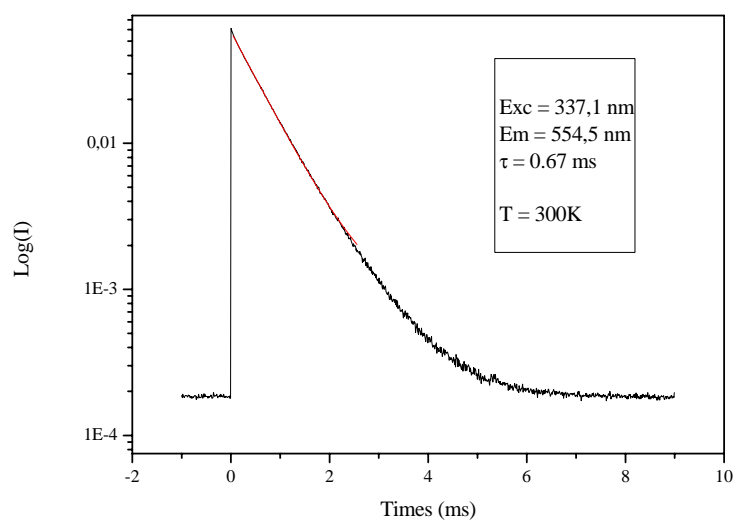


Figure S6. Decay curve recorded from compound 10d in OPE conditions.

Photoluminescence results recorded from complexes **9b** and **10d** in TPE conditions

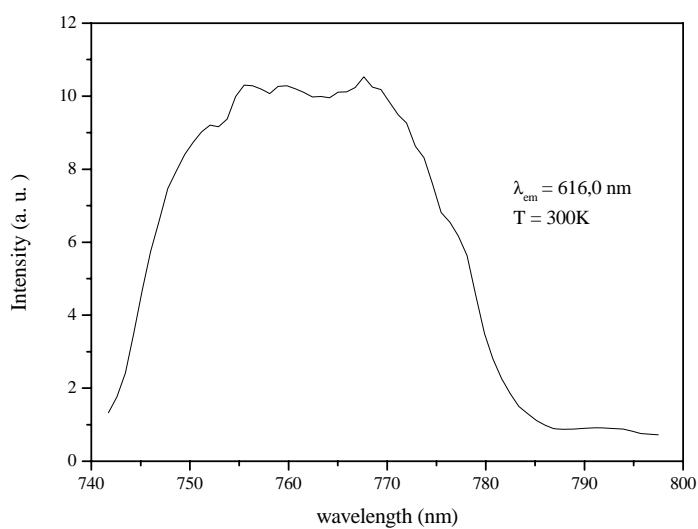


Figure S7. Excitation spectrum recorded at RT from complex **9b** by monitoring the Eu^{3+} ${}^5\text{D}_0 \rightarrow {}^7\text{F}_2$ transition (616.0 nm) in TPE range.

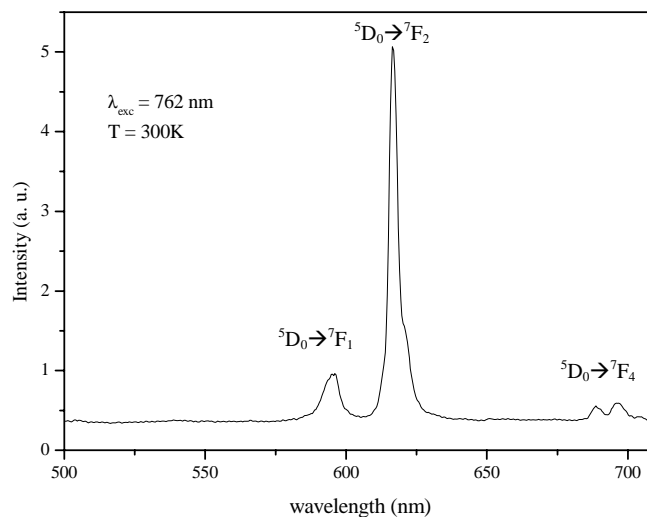


Figure S8. Emission spectrum recorded at RT from complex **9b** upon TPE conditions at 762 nm.

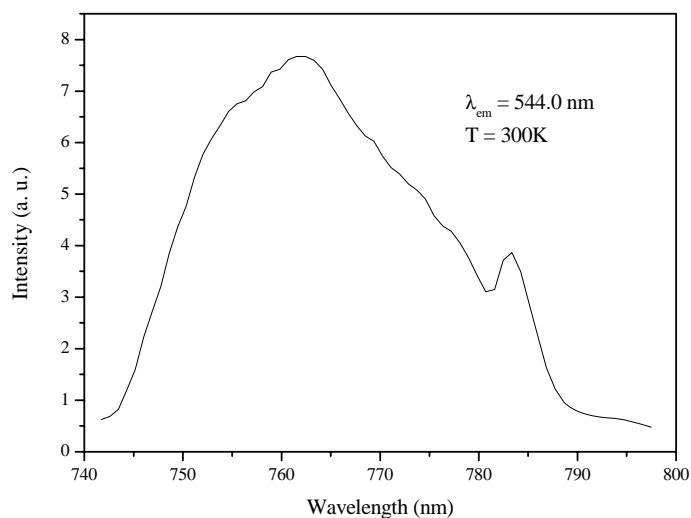


Figure S9. Excitation spectrum recorded at RT from complex **10d** by monitoring the Tb^{3+} $^5\text{D}_4 \rightarrow ^7\text{F}_5$ transition (544.0 nm) in TPE range.

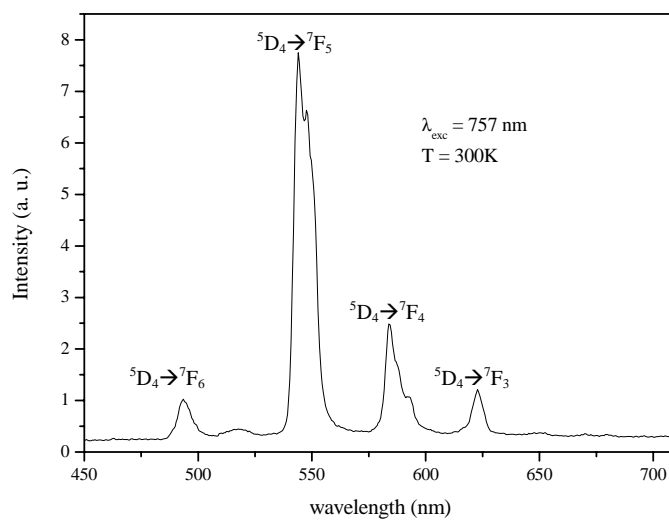


Figure S10. Emission spectrum recorded at RT from complex **10d** upon TPE conditions at 757 nm.

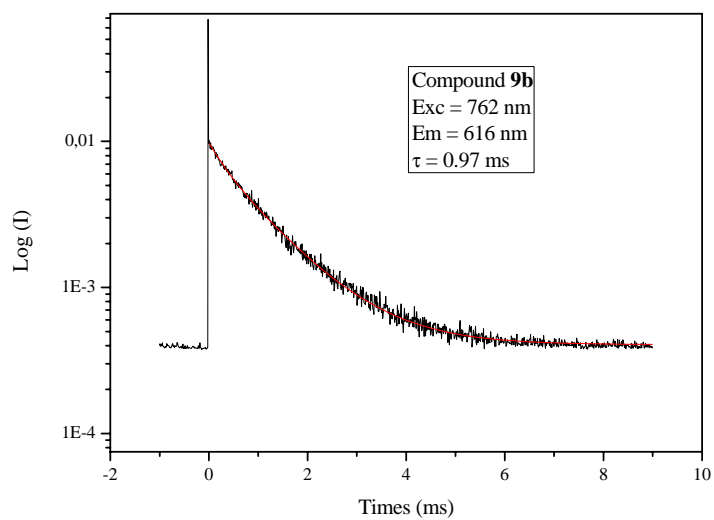


Figure S11. Decay curve recorded from compound **9b** in TPE conditions.

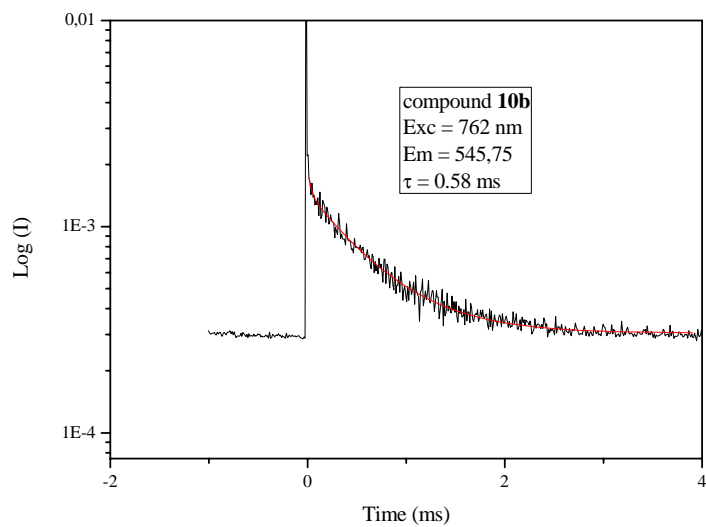


Figure S12. Decay curve recorded from compound **9b** in TPE conditions.

Photoluminescence spectra recorded from complexes **9b** and **10d** in THPE conditions

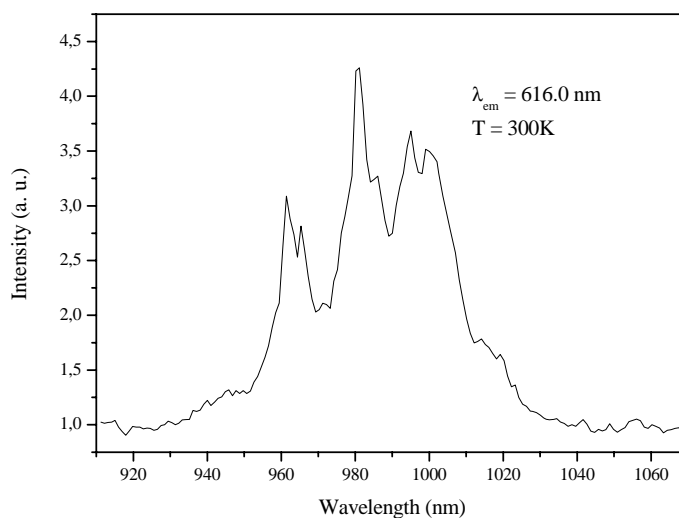


Figure S13. Excitation spectrum recorded at RT from complex **9b** by monitoring the Eu^{3+} $^5\text{D}_0 \rightarrow ^7\text{F}_2$ transition (616.0 nm) in THPE range.

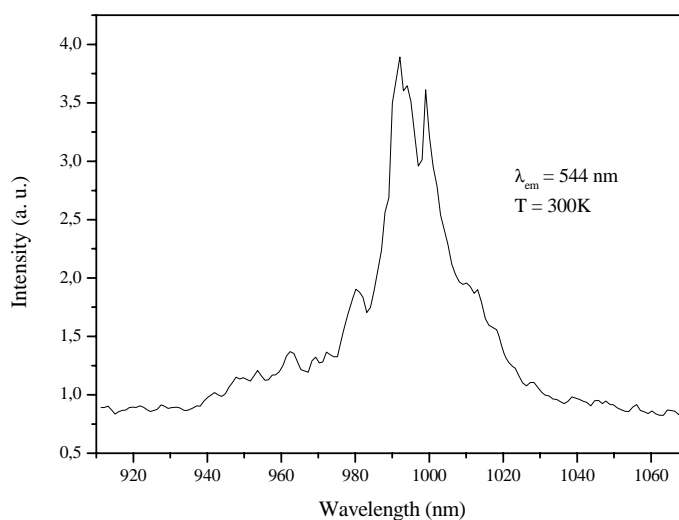


Figure S14. Excitation spectrum recorded at RT from complex **10d** by monitoring the Tb^{3+} $^5\text{D}_4 \rightarrow ^7\text{F}_5$ transition (544.0 nm) in THPE range.

Remark: Emission spectra as well as decay curves are not presented since the signal to noise ratio was too weak to get suitable data.

PREPARATION AND CHARACTERIZATION OF COATINGS

Coatings preparation

The hybrid films were prepared from the solution of Ln(**12**)₃ (Ln = Eu, Tb) in ethanol via the method of spin-coating. Typically, the detailed procedure for the spin-coating is as follows: Compound **12** (152 mg, 0.28 mmol, 3 equivalents) and Ln(NO₃)₃·6H₂O (0.094 mmol, 1 equivalent) were dissolved, under argon and at room temperature, in 3 mL of anhydrous ethanol. After stirring for 10 hours, the solution was carefully dropped into the middle of the clean glass substrate. The transparent films were obtained with a rotation speed of 5000 rpm for 2 minutes, and after drying at 80 °C in an oven for 2 hours.

Profilometry analyses

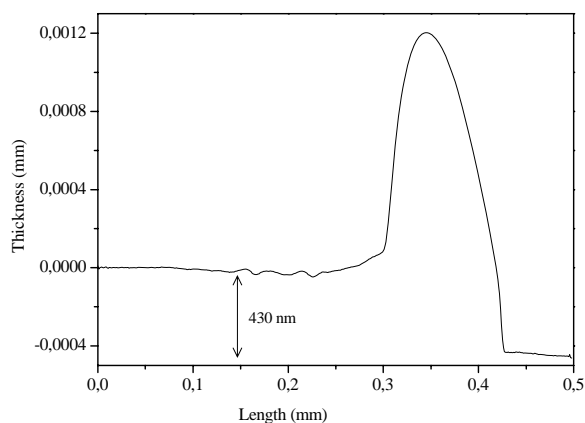


Figure S15. Profilometry analysis from **13a** derived film: the thickness is about 430 nm.

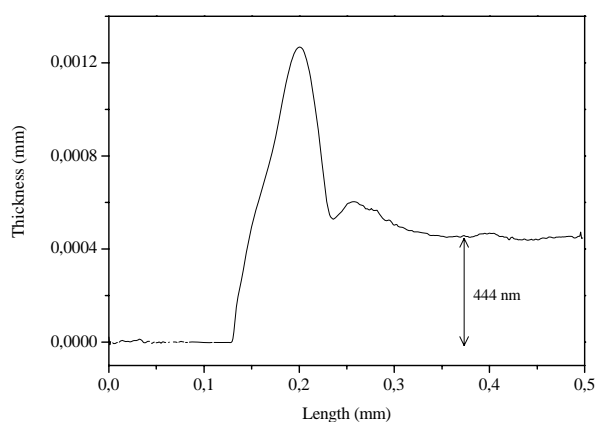


Figure S16. Profilometry analysis from **13b** derived film: the thickness is about 444 nm.

Scanning electron microscopy analysis

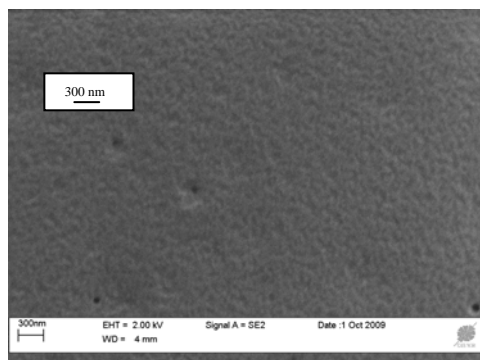


Figure S17. SEM micrograph recorded from **13a** derived coating.

Photoluminescence results from films

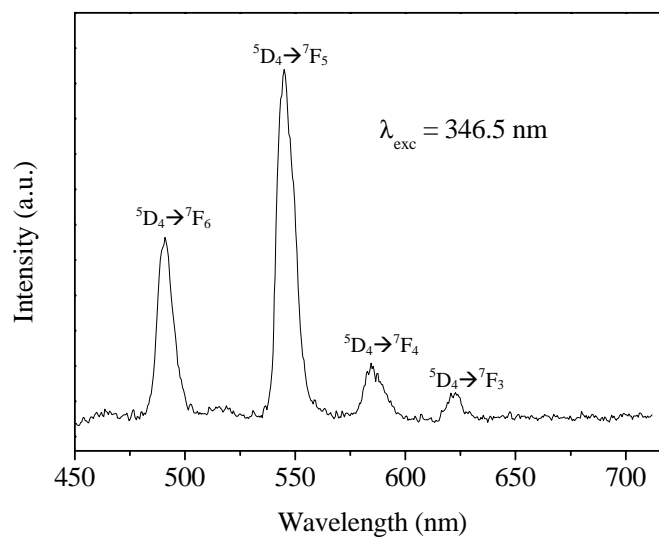


Figure S18. Emission spectrum recorded at RT from **13a** derived film upon excitation at 346.5 nm.

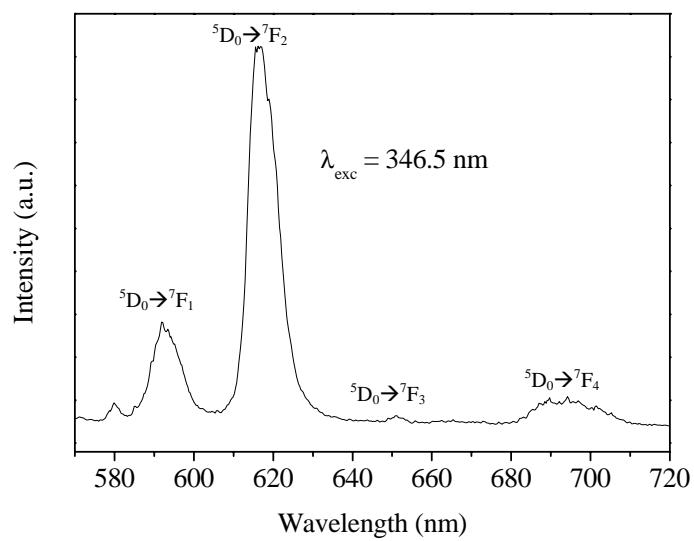


Figure S19. Emission spectrum recorded at RT from **13b** derived film upon excitation at 346.5 nm.